



## ZS33-M060.51 K2S15

### Manual tool change

Item no. **13201039**

HF-Spindle for high-speed milling, -grinding, -drilling, -engraving

### Bearings

Hybrid ball bearing (pcs)	2 (front)
Steel ball bearing (pcs)	1 (rear)
Lifetime lubricated	maintenance free

### Motor

Motor technology	3-phase synchronous drive (no brushes or sensors)
Frequency	1.000 Hz
Motor poles (pairs)	1
Rated rotation speed	60.000 rpm
Acceleration/braking value Per second	10 000 rpm (other values by consultation)

### Power values

#### Spindle holder cooled

	Pmax./5s	S6-60%	S1-100%	
Rated power	0,91	0,76	0,71	[kW]
Torque	0,149	0,126	0,119	[Nm]
Voltage	51	52	48	[V]
Current	15	13,1	12,5	[A]

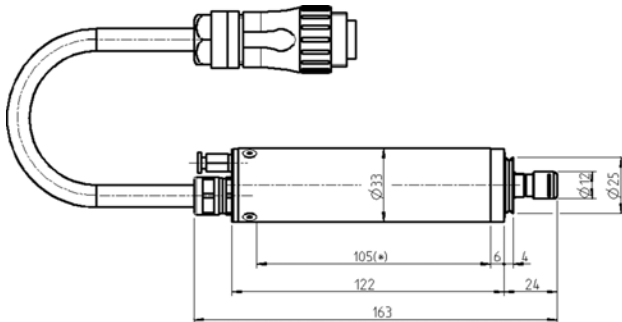
### Power values

#### Uncooled

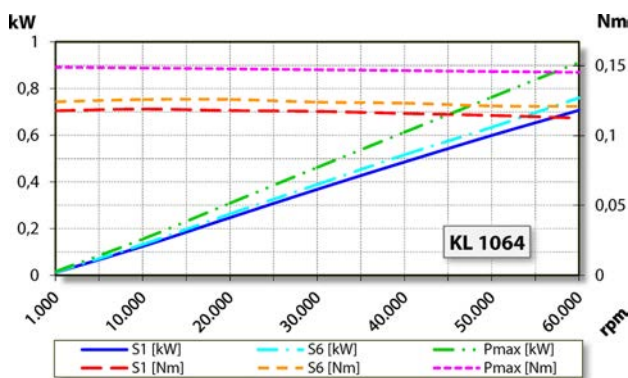
	Pmax./5s	S6-60%	S1-100%	
Rated power	0,65	0,52	0,38	[kW]
Torque	0,108	0,085	0,068	[Nm]
Voltage	45	42	40	[V]
Current	11,9	9,6	7,6	[A]

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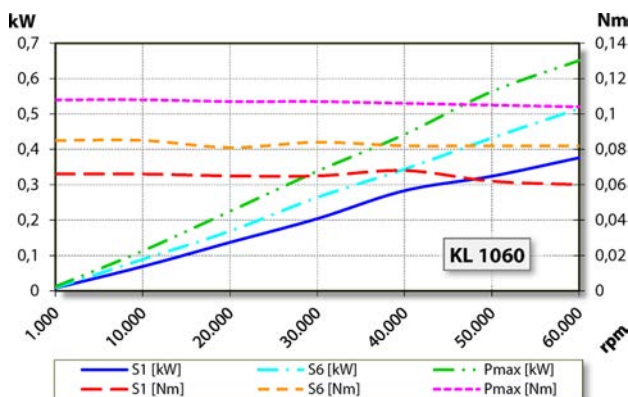
Manual tool change  
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Dimensions



Performance Diagram  
Spindle holder cooled



Performance Diagram  
Uncooled

Measurement of power is funded by in-house testing.

**Characteristics**

Motor protection	PTC 100°C
Housing	Aluminium
Housing diameter	33 mm
Cooling	Uncooled
Heat dissipation	Via the spindle holder
Housing temperature	< + 45° C
Ambient temperature	+ 10°C ... + 45°C
Sealing air	
Protection category (sealing air turned on)	IP54
Tool change	Manual tool change
Collet type	ER 8
	Optional accessories
Clamping range up to	5 mm (13/64")
Clockwise	
Coupler plug	7-pin (Amphenol C16-1) Cable length 2 m
Weight	~ 0,62 kg
Inner taper run out	< 1 μ